DESCRIPTION OF CHARTS

Chart I. *Temperature departures and wind roses for selected stations.*—Based on data contained in table 2, this chart presents the departures of the monthly mean surface temperatures from the monthly normals. The shaded portions of the chart indicate areas of positive departures and unshaded portions indicate areas of negative departures. Generalized lines connect places having approximately equal departures of like sign. Charts of monthly surface temperature departures in the United States were first published in the MONTHLY WEATHER REVIEW for July 1909, and continued thereafter, but smaller charts appear in W. B. *Bulletin U* for 1873 to June 1909, inclusive. An innovation has been made in this chart, beginning January 1939. The selected wind rose data formerly published as chart VII have been transferred to this chart. The wind roses are based on hourly percentages by months for 28 selected Weather Bureau stations.

Chart II. *Tracks of centers of* ANTICYCLONES; and

Chart III. *Tracks of centers of* CYCLONES.—The roman numerals show the chronological order of the centers. The figures within the circles show the days of the month, the location indicated being that at 7:30 a. m., 75th meridian time. Within each circle is also an entry of the last three figures of the highest barometric reading (chart II) or the lowest reading (chart III) reported at or near the center at that time, in both cases as reduced to sea level and standard gravity. The intermediate 7:30 p. m. locations are indicated by dots. The inset map on chart II shows the departure of monthly mean pressure from normal and the inset on chart III shows the change in mean pressure from the preceding month.

The use of a new base map for charts II and III began with the January 1930 issue. Charts IV, V, and VI are based on data found in table 2.

Chart IV. *Percentage of clear sky between sunrise and sunset.*—The average cloudiness at each regular Weather Bureau station is determined by numerous personal observations between sunrise and sunset. The difference between the observed cloudiness and 100 is assumed to represent the percentage of clear sky, and the values thus obtained are the basis of this chart. The chart does not relate to the night hours.

Chart V. *Total precipitation.*—The scales of shading with appropriate lines show the distribution of the monthly precipitation according to reports from both regular and cooperative observers. The inset on this chart shows the departure of the monthly totals from the corresponding normals, as indicated by the reports from the regular stations.

Chart VI. *Isobars at sea level and isotherms at surface, prevailing winds.*—The pressures have been reduced to sea level and standard gravity by the method described by Prof. Frank H. Bigelow in the REVIEW for January 1902, **30:** 13–16. The pressures have also been reduced to the mean of the 24 hours by the application of a suitable correction to the mean of 7:30 a. m. and 7:30 p. m. readings at stations taking two observations daily, and to the 7:30 a. m. or the 7:30 p. m. observation at stations taking but a single observation.

The diurnal corrections so applied, except for stations established since 1901, will be found in the Annual Report of the Chief of the Weather Bureau, 1900–1901, volume 2, table 27, pages 140–164.

The sea-level temperatures are now omitted and average surface temperatures substituted. The isotherms cannot be drawn in such detail as might be desired, for data from only the regular Weather Bureau stations are used.

The prevailing wind directions are determined from hourly observations at almost all the stations. A few stations determine their prevailing directions from the daily or twice-daily observations only.

Chart VII. *Total snowfall.*—This is based on the reports from regular and cooperative observers and shows the depth in inches of the snowfall during the month. In general, the depth is shown by lines connecting places of equal snowfall, but in special cases figures also are given. This chart is published only when the snowfall is sufficiently extensive to justify its preparation. The inset on this chart, when included, shows the depth of snow on the ground at 7:30 p. m. of the Monday nearest the end of the month and is a copy of the snow chart appearing in the Snow and Ice Bulletin for that week. Generally, the publication of the Weekly Snow and Ice Bulletin commences about the middle of December and continues to near the close of March.

Charts VIII, IX, X, and XI show the monthly mean barometric pressures in millibars, mean temperatures in degrees Centigrade, and resultant-wind directions and forces in Beaufort Scale, for 1.5, 3, 5, and 10 kilometers, respectively. However, the mean pressures given on chart VIII are reduced from 1.5 kilometers to an altitude of 5,000 feet (1,524 meters).

The mean pressures and temperatures, based on observations obtained by radiosondes and airplanes, are shown on charts VIII, IX, and X, for 1.5, 3, and 5 kilometers, respectively, while those based on radiosondes only are given on chart XI for 10 kilometers. All Weather Bureau radiosonde observations are made at 12:30 a. m., 75th meridian time.

Resultant-wind directions and forces for the month, as shown on charts VIII and IX for 1.5 and 3 kilometers, respectively, are based on observations taken at 5 a. m., 75th meridian time, but the winds given on charts X and XI (5 and 10 kilometers, respectively), are based on the 5 p. m., 75th meridian time, observations, which, as a rule, reach much higher altitudes.

Chart XII represents a mean isentropic chart which has been developed in accordance with methods used by the Division of Research and Education of the U. S. Weather Bureau. This has been described in detail in the January 1939 issue of the MONTHLY WEATHER REVIEW. It is based on the mean free-air data from radiosonde, airplane, and pilot-balloon stations. This chart is temporarily discontinued with this issue of the MONTHLY WEATHER REVIEW since it is considered of questionable value during winter months.

Chart XIII shows the mean monthly altitudes (in kilometers) and weighted mean temperatures (° C.) of the tropopauses for each radiosonde station, classified in ten-degree intervals of potential temperature (° A). This chart is prepared each month from data shown in table 4 under "Aerological Observations."

Charts XIV, XV, etc.—North Atlantic weather maps for particular days.

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